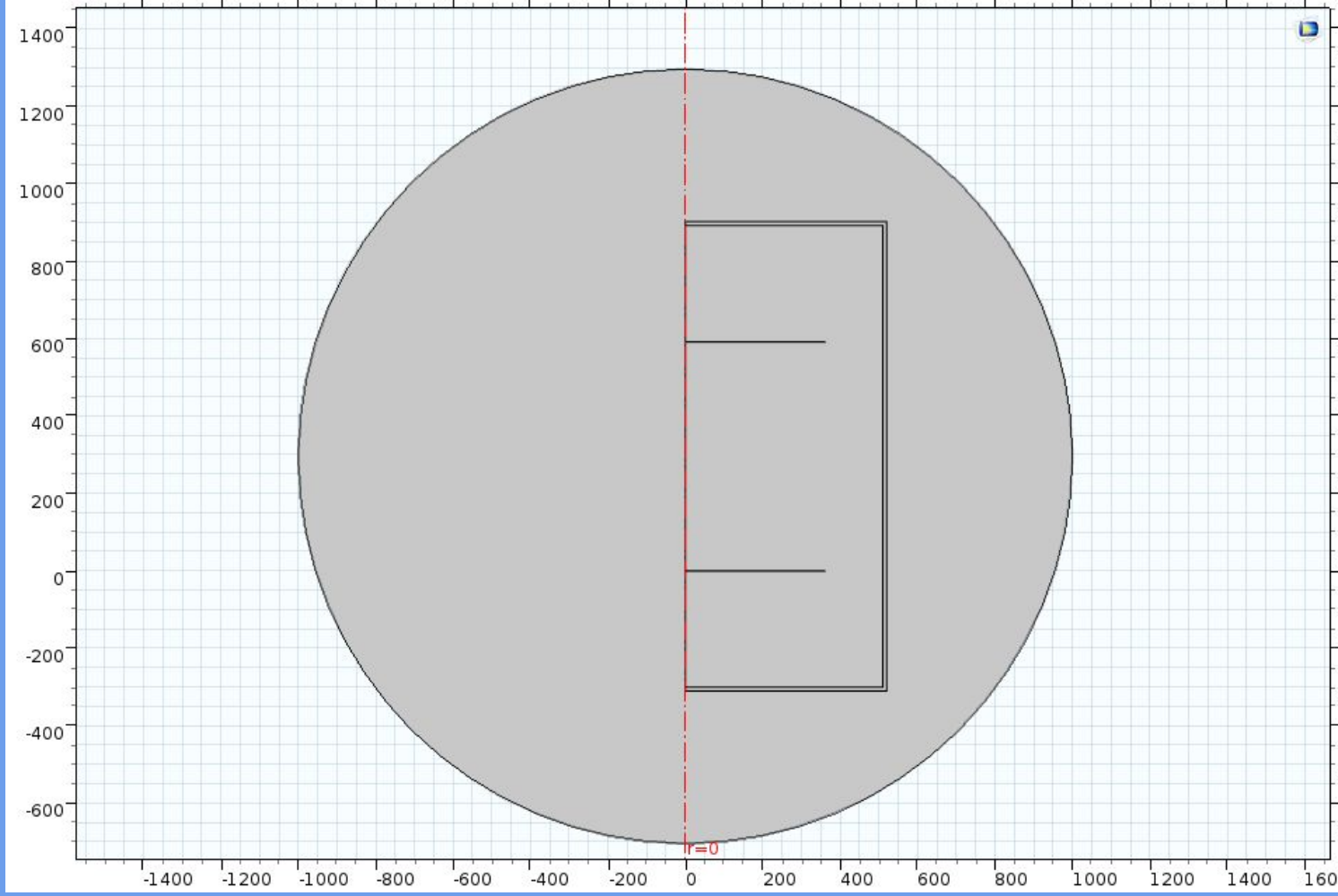
TPC Comsol Update 10/15/15

Vijay Shethna, Abraham Tishelman-Charny

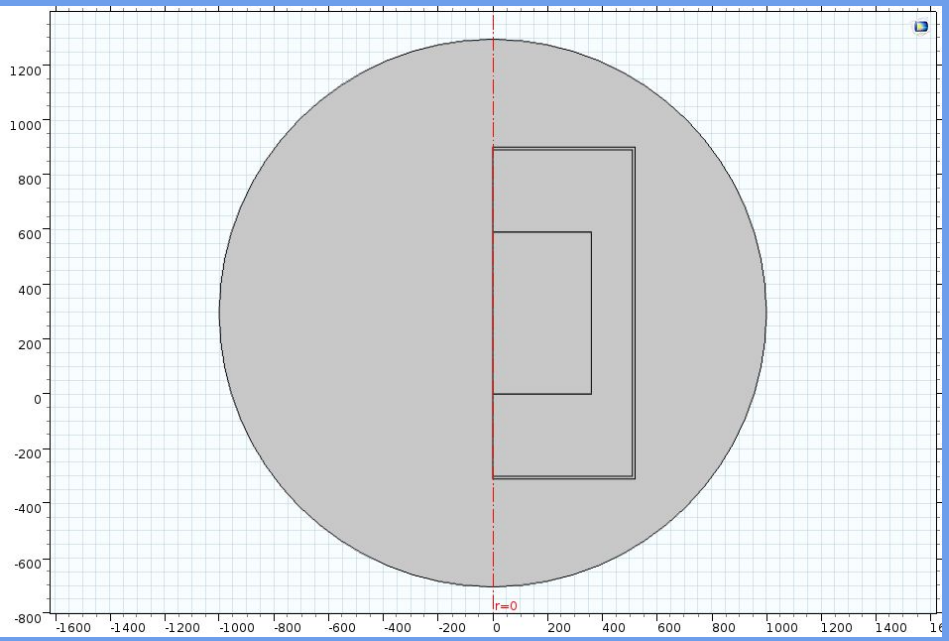
Basic TPC model

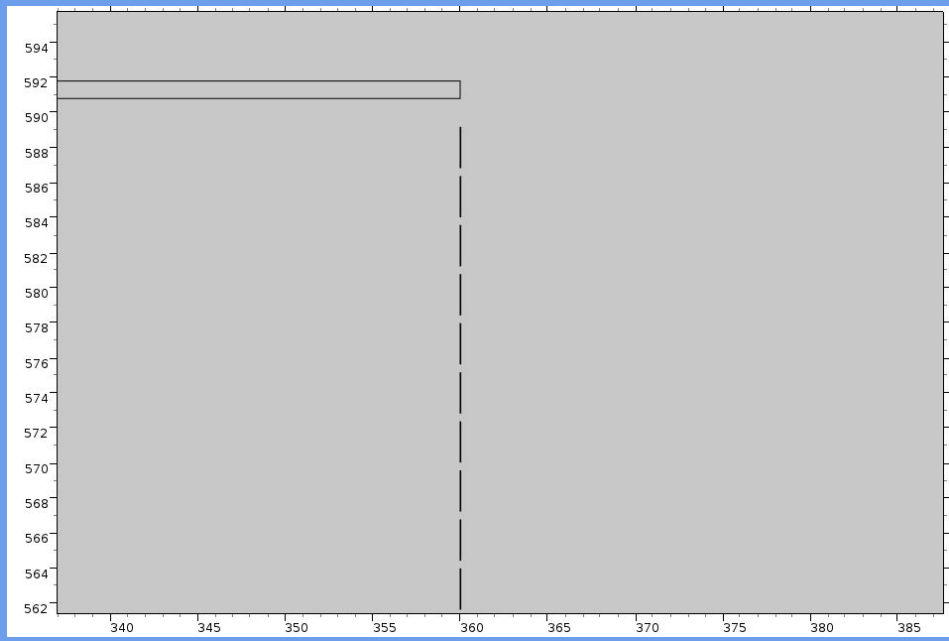
-Created by Carlos Del Castillo.

-We will alter dimensions of Java file to fit our parameters.



Single Strips of Copper



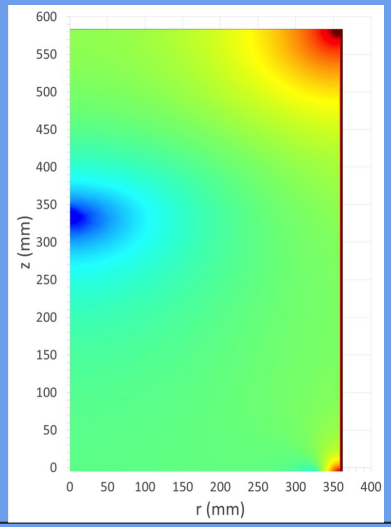


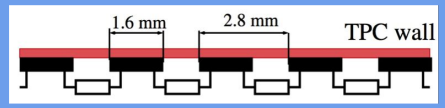
Field Plots to Re-create With New Geometry

Single Strip (Color Map)

Source: Carlos Del Castillo

Single Strip

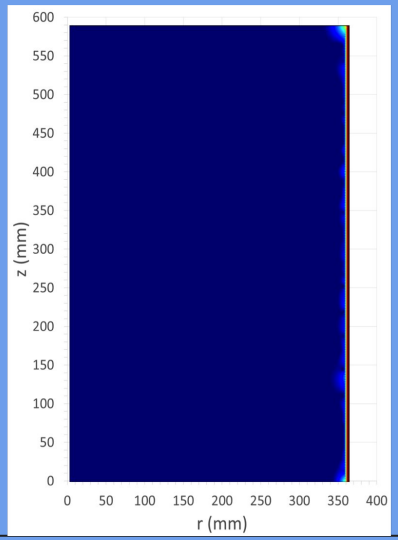


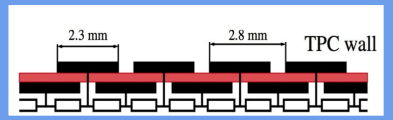


Staggered Mirror (Ideal Goal) (Color Map)

Source: Carlos Del Castillo

Staggered Mirror





Geometry to Implement

-Inner Radius=15cm

-Outer Radius=80cm

-Cylinder Half-Length=80cm

-Potential Difference from end plate to center=32kV (maybe 34kV?)

-Strips: 9mm wide, 1mm gap.

-80 copper strips, ΔV=400V between strips.

-Kapton tape thickness=50μm (for mirror strip geometry)

Next Steps

- Need to change the values for potential gradient and geometry in Java files so we can create a model with our parameters.
- After adjusting potential and geometry, we'll obtain plots of homogeneous electric field inside TPC.
- We are currently having a hard time with COMSOL on the virtual sinc site due to lack of necessary RAM to produce basic models and computations, so bear with us...